## AMENDMENTS TO CLAIMS:

The listing of claims below will replace all prior versions, and listings, of claims in the application.

## LISTING OF CLAIMS:

1. (Currently Amended) A method for improving resolution of a digital representation having a plurality of text or graphics pixels, comprising the steps of:

identifying a text or graphics pixel on a boundary of a text or graphics object of the digital representation; and

for each text or graphics pixel identified as on the boundary

tracing a group of pixels, including the initial boundary-identified pixel, that constitute a local boundary segment and constructing an identifier indicative of the number and relative locations of the pixels of that local boundary segment, the tracing comprising searching for and identifying each new pixel in the group with respect to a background pixel near the initial boundary-identified pixel, wherein orientation and order of the searching is with respect to the background pixel during the entire tracing step;

parameterizing and smoothing that local boundary segment, resulting in a new local boundary segment, without consideration of non-boundary segment data, by computing instructions for parameterizing and smoothing that local boundary segment; and

rendering the parameterized and smoothed boundary segment to increase the resolution of the text or graphics object.

2. (Previously Presented) The method of claim 1, wherein the instructions are pre-computed, stored in a look-up table, indexed by the corresponding identifier, and directly accessed during the parameterizing and smoothing of that local boundary segment.

3. (Canceled)

4. (Currently Amended) The method of claim ~~3~~1, wherein the tracing step comprises identifying first and second contiguous sub-groups of pixels, each

starting with the initial pixel and extending in first and second directions respectively relative to the propagated background neighbor pixel and, if available, a just-identified pixel in that sub-group to construct the identifer.

5. (Currently Amended) The method of claim ~~33~~1, wherein the tracing step comprises tracing N pixels in a first direction and N pixels in a second direction to construct the identifier based on a pre-determined set of rules used in the tracing step.

6. (Previously Presented) The method of claim 2, wherein the stored instructions on parameterizing and smoothing comprise a differential stored at a location in the pre-computed look-up table indexed by the corresponding identifier, the differential representing a difference between the location of at least one pixel in the new local boundary segment and the location of that pixel in the corresponding un-parameterized and un-smoothed local boundary segment.

7. (Previously Presented) The method of claim 2, wherein the stored instructions on parameterizing and smoothing comprise general occupancy information stored at a location in the pre-computed look-up table indexed by the corresponding identifier, the general occupancy information representing a difference between the location of the new local boundary segment and the location of the corresponding un-parameterized and un-smoothed local boundary segment.

8. (Original) The method of claim 1, wherein the identifying step comprises identifying each text and graphics pixel on a boundary of a text or graphics object of the digital representation, and performing the tracing, parameterizing and smoothing, and rendering for each boundary-identified pixel.

9. (Currently Amended) An apparatus for improving resolution of a digital representation having a plurality of text or graphics pixels, the apparatus comprising:

means for identifying a text or graphics pixel on a boundary of a text or graphics object of the digital representation; and

means for tracing a group of pixels, including an initial boundary-identified pixel, that constitute a local boundary segment and constructing an identifier indicative of the number and relative locations of the pixels of that local boundary segment, the tracing comprising searching for and identifying each new pixel in the group with respect to a background pixel near the initial boundary-identified pixel, wherein orientation and order of the searching is with respect to the background pixel during the entire tracing operation;

means for parameterizing and smoothing that local boundary segment to generate a new local boundary segment, without consideration of non-boundary segment data, by computing instructions for parameterizing and smoothing that local boundary segment; and

means for rendering the parameterized and smoothed boundary segment to increase the resolution of the text or graphics object.

10. (Previously Presented) The apparatus of claim 9, wherein the instructions are pre-computed, stored in a look-up table, indexed by the corresponding identifier, and directly accessed during the paramterizing and smoothing of that local boundary segment.

11. (Canceled)

12. (Currently Amended) The apparatus of claim ~~3~~9, wherein the tracing means is configured to identify first and second contiguous sub-groups of pixels, each starting with the initial pixel and extending in first and second directions respectively relative to the propagated background neighbor pixel and, if available, a just-identified pixel in that sub-group to construct the identifier.

13. (Currently Amended) The apparatus of claim ~~3~~9, wherein the tracing means is configured to trace N pixels in a first direction and N pixels in a second direction to construct the identifier.

14. (Previously Presented) The apparatus of claim 10, wherein the stored instructions on parameterizing and smoothing comprise a differential stored at a location in the pre-computed look-up table indexed by the corresponding identifier, the differential representing a difference between the location of at

least one pixel in the new local boundary segment and the location of that pixel in the corresponding un-parameterized and un-smoothed local boundary segment.

15. (Previously Presented) The apparatus of claim 10, wherein the stored instructions on parameterizing and smoothing comprise general occupancy information stored at a location in the pre-computed look-up table indexed by the corresponding identifier, the general occupancy information representing a difference between the location of the new local boundary segment and the location of the corresponding un-parameterized and un-smoothed local boundary segment.

16. (Original) The apparatus of claim 9, wherein the identifying means is configured to identify each text and graphics pixel on a boundary of a text or graphics object of the digital representation, and wherein the tracing, parameterizing and smoothing, and rendering means are each configured to operate on each boundary-identified pixel.

17. (Currently Amended) A machine-readable medium having a program of instructions for directing a machine to improve resolution of a digital representation having a plurality of text or graphics pixels, the program of instructions comprising:

instructions for identifying a text or graphics pixel on a boundary of a text or graphics object of the digital representation; and

for each text or graphics pixel identified as on the boundary

instructions for tracing a group of pixels, including the initial boundary-identified pixel, that constitute a local boundary segment and constructing an identifier indicative of the number and relative locations of the pixels of that local boundary segment, the tracing instructions comprising instructions for searching for and identifying each new pixel in the group with respect to a background pixel near the initial boundary-identified pixel, such that orientation and order of the searching is with respect to the background pixel during the entire tracing operation;

instructions for parameterizing and smoothing that local boundary segment, resulting in a new local boundary segment, without consideration of non-boundary segment data, by computing directions for parameterizing and smoothing that local boundary segment; and

instructions for rendering the parameterized and smoothed boundary segment to increase the resolution of the text or graphics object.

18. (Previously Presented) The machine-readable medium of claim 17, wherein the directions are pre-computed, stored in a look-up table, indexed by the corresponding identifier, and directly accessed during the parameterizing and smoothing of that local boundary segment.

19. (Canceled)

20. (Currently Amended) The machine-readable medium of claim ~~35~~17, wherein the tracing instructions comprises identifying first and second contiguous sub-groups of pixels, each starting with the initial pixel and extending in first and second directions respectively relative to the propagated background neighbor pixel and, if available, a just-identified pixel in that sub-group to construct the identifier.

21. (Currently Amended) The machine-readable medium of claim ~~35~~17, wherein the tracing instructions comprises instructions for tracing N pixels in a first direction and N pixels in a second direction to construct the identifier based on a pre-determined set of rules used in the tracing.

22. (Previously Presented) The machine-readable medium of claim 18, wherein the stored directions on parameterizing and smoothing comprise a differential stored at a location in the pre-computed look-up table indexed by the corresponding identifier, the differential representing a difference between the location of at least one pixel in the new local boundary segment and the location of that pixel in the corresponding un-parameterized and un-smoothed local boundary segment.

23. (Previously Presented) The machine-readable medium of claim 18, wherein the stored directions on parameterizing and smoothing comprise general

occupancy information stored at a location in the pre-computed look-up table indexed by the corresponding identifier, the general occupancy information representing a difference between the location of the new local boundary segment and the location of the corresponding un-parameterized and un-smoothed local boundary segment.

24. (Original) The machine-readable medium of claim 17, wherein the identifying instructions comprises identifying each text and graphics pixel on a boundary of a text or graphics object of the digital representation, and performing the tracing, parameterizing and smoothing, and rendering for each boundary-identified pixel.

Claims 25-35 (Canceled)